



LOTTERY FUNDED

Supported by Nesta, Arts & Humanities Research Council and public funding by the National Lottery through Arts Council England

Topical objects study

10 Most Wanted evaluation

09 July 2014

Marcus Winter, University of Brighton

Contents

- 1. Background..... 3
- 2. Instrument..... 3
- 3. Sampling..... 4
- 4. Data analysis..... 4
- 5. Findings 5
- 6. Summary and conclusions..... 8
- 7. References..... 9
- A. Appendix 10
- A.1 List of objects included in the study..... 10
- A.2 Data visualisations..... 11

1. Background

The 10 Most Wanted project develops a game-based approach to crowd-sourcing aspects of curatorial research concerned with the discovery and verification of previously undocumented facts about collection items.

An overarching research question in the project is how to develop participation and reach new audiences for the collection. Public engagement is a basic requirement to make 10 Most Wanted viable, as the concept cannot work without participants, and it is essential with regard to longer-term sustainability of the project beyond the funding period. Key factors in this context include motivational aspects explaining why participants take part in crowdsourcing projects in first place, design aspects of the crowdsourcing platform playing at these motivations, and related facilitation practices to promote the project, encourage initial engagement and sustain that engagement.

This document reports on a study investigating the latter aspect of encouraging and sustaining engagement. One particular aspect of 10 Most Wanted is that it focuses the crowdsourcing effort on 10 objects at a time out of a collection of many thousand objects. Curators pick these 10 objects and specify which data is missing about them. Objects are then presented to participants as a "case" and illustrated with one or more photographs.

As key motivations for participation in crowdsourcing projects include intrinsic motivation (Grove-White et al., 2007; Raddik et al., 2010; Nov et al., 2011; Dunn and Hedges, 2012) and fun (Prestopnik and Crowston, 2011), the project team hypothesised that the kind of object selected might have an important impact on participation levels and that topical objects which relate to current events or trends might be more relevant to potential participants and therefore more effective in attracting engagement. In order to test this hypothesis, the project team carried out a controlled study where curators posted topical objects alongside control objects and collected related engagement data.

2. Instrument

The study was carried out between 13 April and 3 May 2014 (21 days), with curators initially replacing all current objects in the list of most wanted objects with new objects, including both topical and control objects. Objects were then replaced on an individual basis when they did not receive any attention for three days or when the case was solved.

Various engagement data was collected for each day an object was featured on the 10 Most Wanted website, including:

- Social media posts and other activities to promote the object / case / mystery
- Social media reactions (e.g. *Likes*, posts) and other engagement (e.g. email) from players
- Analytics data for object pages (unique visitors, page views, average dwell time)

Data was collected by facilitators in an Excel workbook holding a dedicated worksheet for each object with meta data about the case, dates when the object was put up and taken down, and a data grid with engagement data for each day the object was displayed.

3. Sampling

The study involved a total of 15 topical objects and 13 control objects (Figure 1). Objects were considered topical if they related to current news, trending #hashtags or seasonal events. The topicality of objects was emphasised in promotional posts on/in the 10 Most Wanted Twitter account and Facebook groups. For instance, while *#SteveJobs* was trending on Twitter on 24 April 2014, curators promoted the object "*iPod 60GB MP3 player*" with the tweet:

*#SteveJobs knew what we want to know. Take a look here: [URL] ... and see if you do.
#artsdigital pic.twitter.com/GaDbAQ1pis*

The tweet included a link to the relevant object page on the 10 Most Wanted website, where players could get more information about the object and task, and an image of the object that would attract the attention of people interested in historic Apple products.

A list of all objects together with wanted information and relevance to current topics is available in Appendix A1.

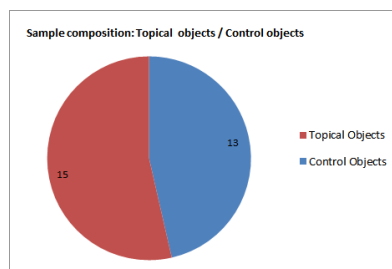


Figure 1: Sample composition

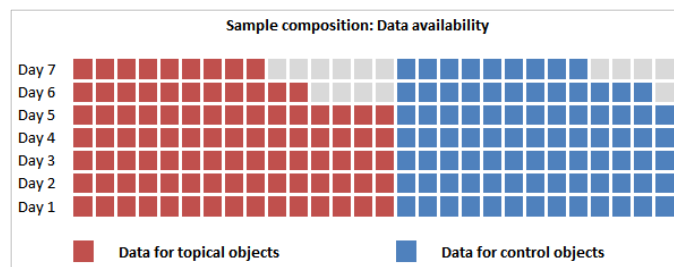


Figure 2: Data availability

As data was collected only for the period an object was featured on the 10 Most Wanted Website and this period could vary depending on the attention the object received, available data for each object varied from 5 to 20 days.

In order to meaningfully compare this quantitative engagement data across all objects and at the same time include as many days as possible, only the first seven days of data were included in the analysis, resulting in 196 potential sampling days (7 days x 28 objects = 196 sampling days). The actual data set contained data for 181 days (92.3%) with a maximum of 2 days' data missing for any object in the sample (Figure 2). The 15 days (7.7%) without data were excluded from mean calculations rather than attributing them with null values.

4. Data analysis

The data analysis focused on quantitative data to measure the effectiveness of promoting topical objects in order to attract more players. It involved segmenting available data sets into topical and control objects, calculating mean values and standard deviations for each day and segment, and aggregating mean values for each segment over the whole sample period. Acknowledging the

different sample sizes for topical objects (n=15) and control objects (n=13), the analysis used mean values instead of totals.

Data visualisations were produced on a per object basis (based on actual values) and on a per segment basis (based on mean values) for a range of aspects, including promotional activities, social media responses and web metrics documenting generated traffic, visitor numbers and average dwell time as an indicator for depth of engagement. The visualisations supported the inspection of data with regard to variance between objects and segments and the identification of general trends. (Data visualisations for specific aspects are available in Appendix A2).

In order to spot correlations between promotions and various aspects of engagement, individual data sets were then combined in a single graph for topical and control objects each. Values were re-scaled to a range of 0 to 1 for this purpose with 1 being determined by the maximum for each data set from topical and control segments to make the graphs comparable.

5. Findings

Object promotion (as the primary means of encouraging audience engagement) varied between topical and control objects. Besides the obvious difference that topical objects were promoted with relation to a specific topic or trend, whereas control objects were promoted with reference to their intrinsic qualities, the data shows a clear difference in the pattern of promotional activity with the number of posted messages steadily declining and then stabilising from Day 4 onwards for control objects while there is a clear spike on Day 5 followed by further decline for topical objects (Figure 3).

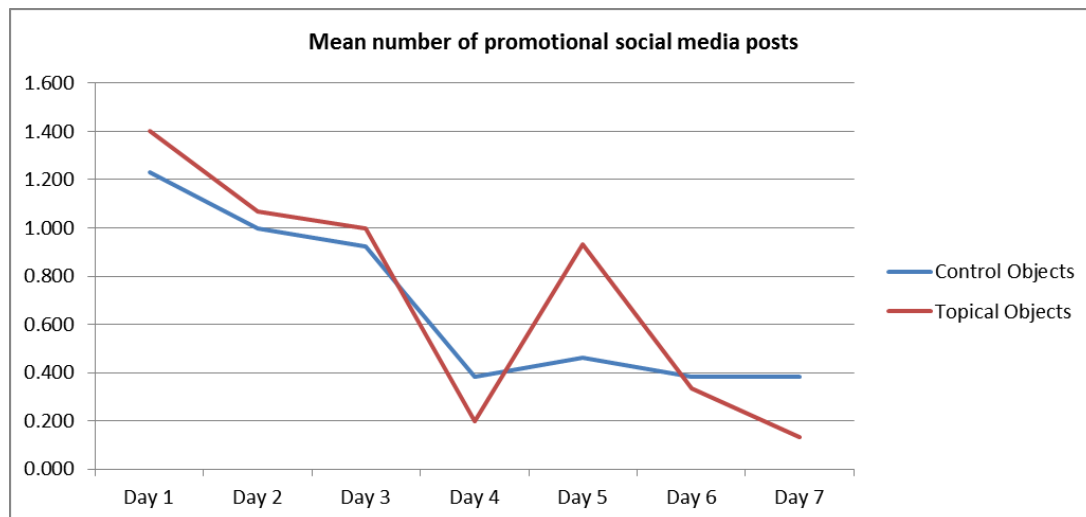


Figure 3: Mean number of promotional social media posts for control and topical objects

The spike on Day 5 for topical objects can at least be partly explained with the practice of posting a reminder or final appeal for topical objects before they are taken down due to inactivity, even if that practice was not always followed through.

The pattern of promotional activity is largely reflected in social media reactions, made up mainly of *Likes* and comments in the 10 Most Wanted Facebook group. While reactions for control objects steadily decline towards Day 7, there is a spike in reactions on Day 5 for topical objects (Figure 4).

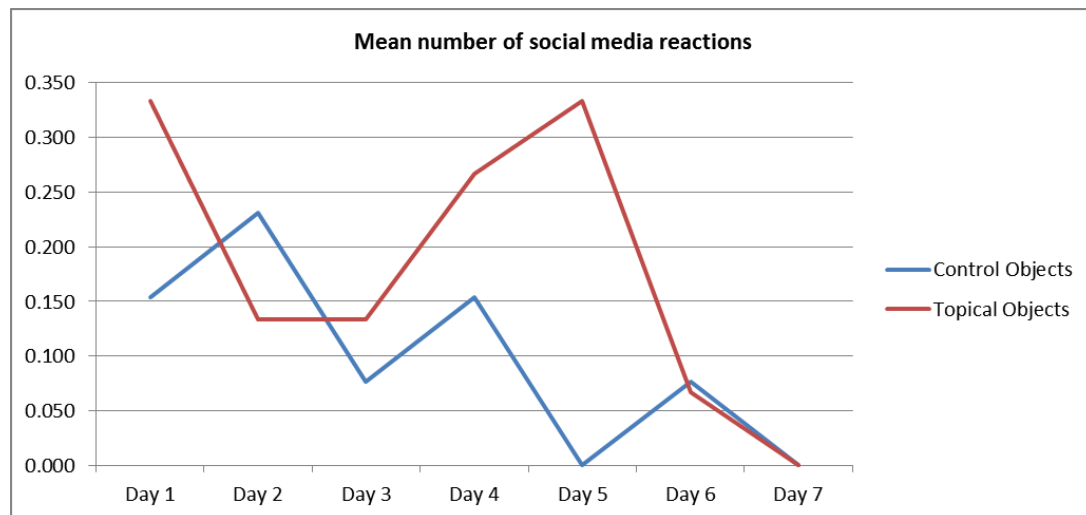


Figure 4: Mean number of social media reactions for control and topical objects

A slight incongruence can be observed for Day 4, which shows relatively high levels of social media reactions for both, control and topical objects, despite low levels of promotional activity on that day.

The pattern of promotional activity is also reflected in the number of unique visitors to the relevant object pages on the 10 Most Wanted website. While (after an initial ramp-up from Day 1 to Day 2) the unique visitors numbers primarily decline for control objects, there is a clear spike on Day 5 for topical objects (Figure 5).

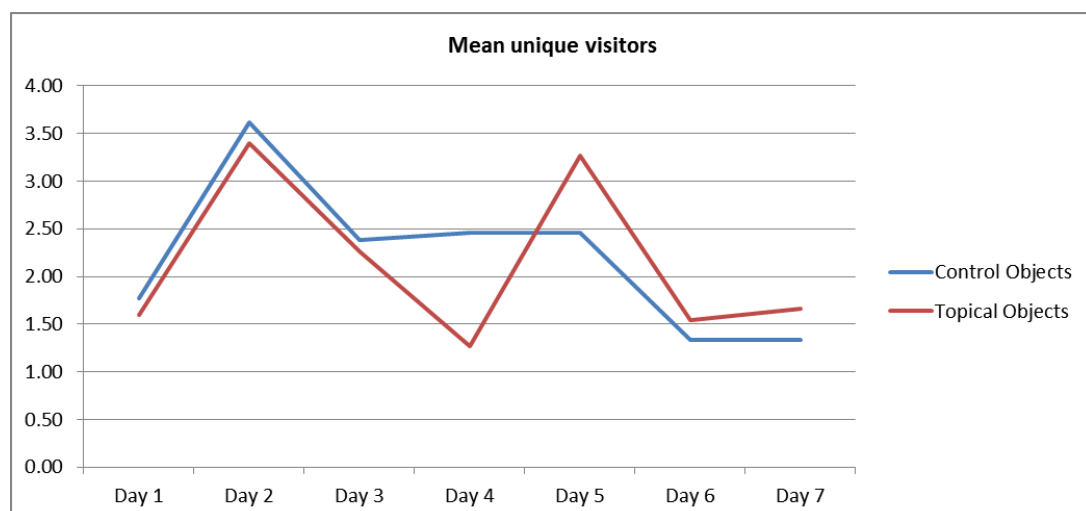


Figure 5: Mean number of unique visitors for control and topical objects

The pattern of promotional activity is even more clearly reflected in the total number of views for object pages on the 10 Most Wanted website, with page views for control objects steadily declining while there is a clear spike on Day 5 for topical objects (Figure 6) .

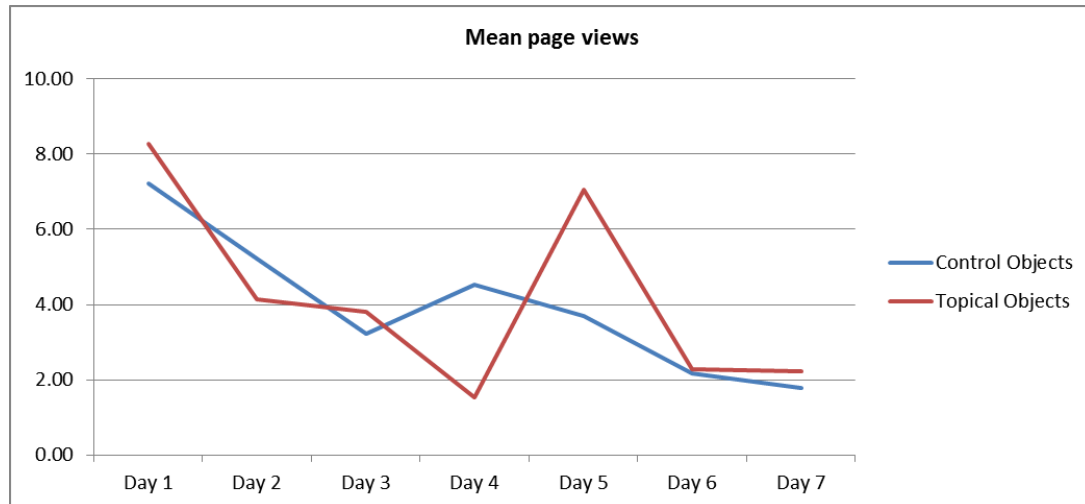


Figure 6: Mean number of page views for control and topical objects

While the above metrics (social media reactions, unique visitors, page views) provide a quantitative view on player engagement, average dwell time on an object page is an indicator for depth of engagement and therefore adds a qualitative dimension to the discussion. Interestingly, there seems to be no correlation between the pattern of promotional activity and dwell time on object pages (Figure 7), indicating that while active promotion creates awareness and passing engagement in the form of social media responses or page views, it does not generate deep engagement with objects and cases. Furthermore, the data indicates that while there is only a marginal increase in dwell time for topical objects over time, there is a clear increase in dwell time for control objects, suggesting that an object's intrinsic qualities are more relevant for deep engagement than association with a current topic or trend.

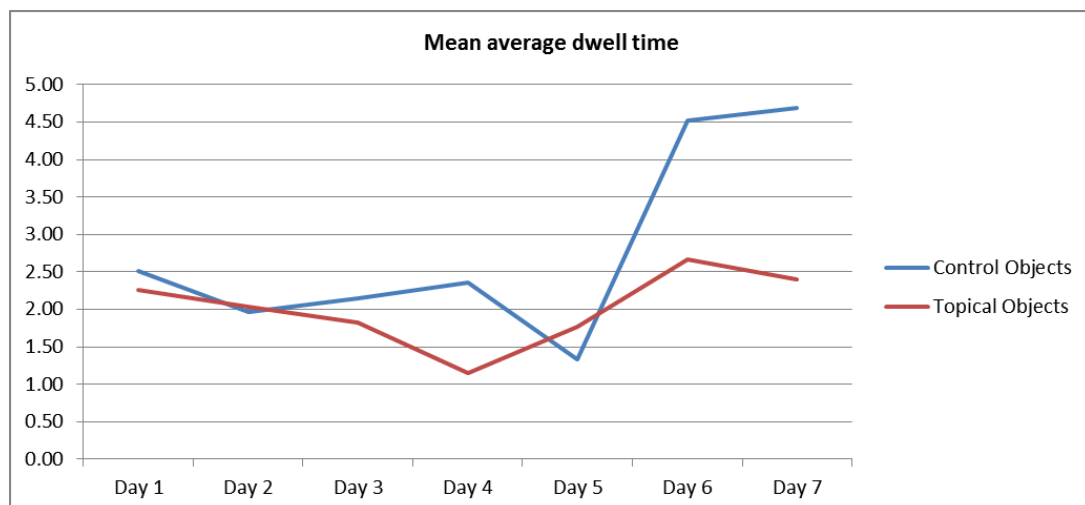
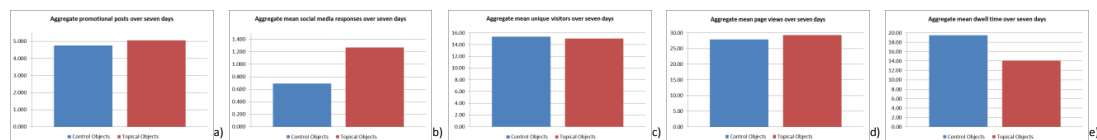


Figure 7: Mean average dwell time for control and topical objects

This view is further supported by a quantitative comparison of these aspects between control and topical objects, which aggregates mean data over seven days (Figures 8a-d). While control and topical objects were by and large equally promoted and achieved similar results with regard to unique visitors and page views, there are more pronounced differences in social media responses and overall dwell time. While the former suggests more buzz around topical objects, the latter suggests deeper engagement with control objects, which are selected for their intrinsic qualities rather than relevance to current topics and trends.



Figures 8a-e: Aggregated mean values for a) promotional activity, b) social media responses, c) unique visitors, d) page views and e) dwell time for control (blue) and topical (red) objects.

6. Summary and conclusions

This report makes a contribution towards answering overarching research questions related to encouraging and sustaining public engagement and participation in the 10 Most Wanted project. It reports on a study investigating whether the practice of selecting and promoting topical objects that relate to current topics, trends or seasonal events, can help to widen participation in the project and increase the number of active players.

In order to test this proposition, a study was carried out involving curators putting up topical objects alongside non-topical control objects, and promoting topical objects with clear references to the topic, trend or event they related to. Objects were replaced after three days of inactivity or when their case was solved.

Results show that topical objects generate significantly more responses on social media but overall receive similar levels of web traffic to control objects with comparable amounts of promotion, indicating that the effects of their topicality are largely confined to the social media channels where objects are promoted and do not translate into increased web traffic.

Furthermore, the results show that players spent more time on the case pages for control objects than on the case pages for topical objects. This difference in engagement levels suggests that players could relate more deeply to control objects, which were selected due to their intrinsic quality of being remarkable in some way, than to topical objects, which were selected due to their relevance to current topics and trends.

In conclusion, the results refute the hypothesis that topical objects which relate to current events or trends are more relevant to potential participants and therefore more effective in attracting engagement. While topical objects lead to more social media responses, this does not translate to more engagement on the website. Furthermore, intrinsically interesting objects seem more effective in attracting deep engagement with objects / cases as required in 10 Most Wanted.

7. References

- Dunn, S. and Hedges, M. (2012). Engaging the Crowd with Humanities. A scoping study. Research Centre for e-Research , Department of Digital Humanities. King's College London.
Available <http://stuartdunn.files.wordpress.com/2013/04/crowdsourcing-connected-communities.pdf>
- Grove-White, R., Waterton, C., Ellis, R., Vogel, J., Stevens, G. & Peacock, B. (2007). Amateurs as experts: harnessing new networks for biodiversity. Lancaster University, Lancaster.
Available
<http://csec.lancs.ac.uk/docs/Amateurs%20as%20Experts%20Final%20Report.pdf>
- Nov, O., Arazy, O. and Anderson, A. (2011). Dusting for science: motivation and participation of digital citizen science volunteers. In Proceedings of the 2011 iConference (iConference '11). ACM, New York, NY, USA, 68-74.
- Prestopnik, N. R. and Crowston K. (2011). Gaming for (citizen) science: Exploring motivation and data quality in the context of crowdsourced science through the design and evaluation of a social-computational system. Proceedings of the IEEE eScience Conference, Stockholm 2011, pp. 28-33. Available
http://crowston.syr.edu/sites/crowston.syr.edu/files/gamingforcitizenscience_ver6.pdf
- Raddick, M. J., Bracey, G., Gay, P. L., Lintott, C. J., Murray, P., Schawinski, K., Szalay, A. S. and Vandenberg, J. (2010). Galaxy Zoo: Exploring the Motivations of Citizen Science Volunteers. *Astronomy Education Review*, 9(1), 1-18.

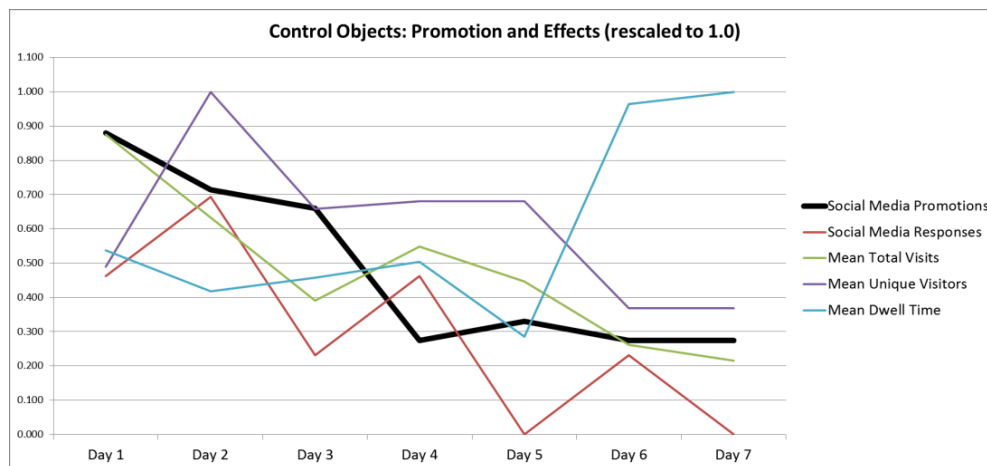
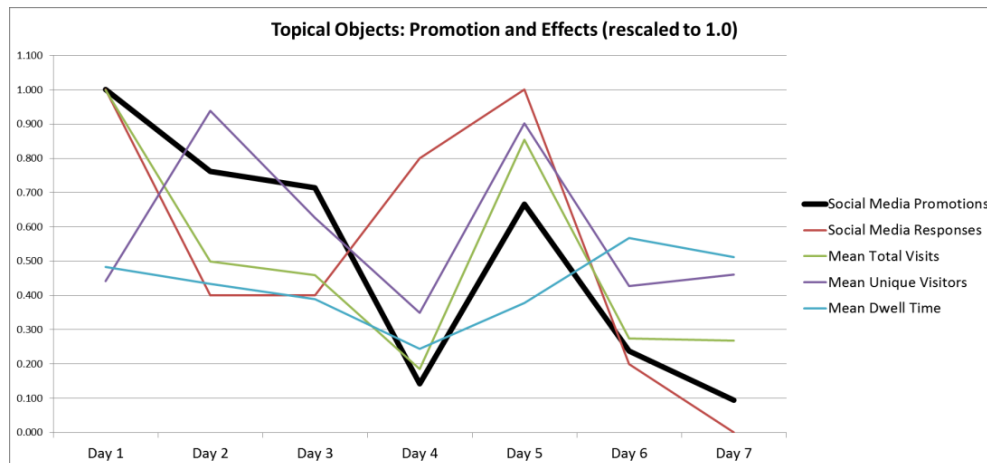
A. Appendix

A.1 List of objects included in the study

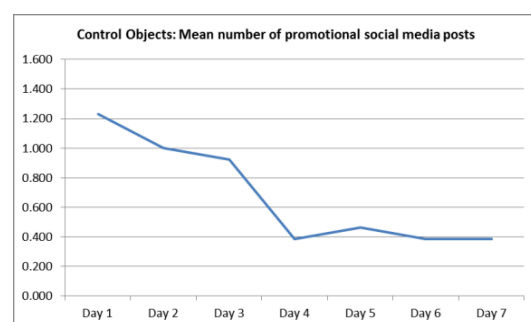
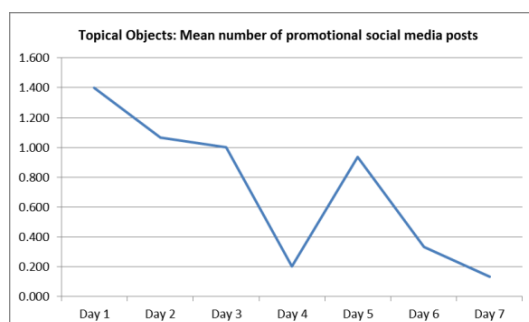
Object	Wanted	Topic
iPod 60GB MP3 player	Designer (found) ; Material (found); method (found)	#SteveJobs
Plastalux Desk Lamp	Designer	- control object -
Egg cups	Designer (not found) country (not found) date (not found)	- control object -
De Luxe Junior Typewriter	Designer (found) date (found)	- control object -
Vacuum jug	Designer (not found); date (not found)	#MayDay
Eau de Toilette Bottle	Designer (not found) manufacturer (not found)	- control object -
Octagonal bowl	Designer (not found); information on the Magneto syndicate (found); date (found)	- control object -
Jelly shoes	Designer (not found); date (not found)	#May Day
cigarette casket	Designer (not found); date (not found)	- control object -
Sundae cup	Designer (not found); date (not found)	ESA Rosetta + #MayDay
Floral brooch	(Designer) not found; manufacturer (not found) ; country (found)	Easter
Lidded bowl	Designer (not found); manufacturer (not found)	St Georges Day and #proudtobebrish
The Picnic friend	Designer (not found); method (not found)	#EarthDay
Sparkling Lemon and Lime bottle	Designer (not found); Manufacturer (not found); Country (not found)	#Liverpool and #football
CD Case	Manufacturer (not found)	#DanielWeil
Tulip lights	Designer (not found); Country (not found)	National Garden Week
Ink well	Designer (found); Date(found)	- control object -
Electric Hotwater bottle	Designer (not found)	#thegadgetshow
Funny Bunny Pot	Designer (not found); Manufacturer (not found); Country (not found)	Easter
Flower brooch	Designer (not found), Manufacture (not found) Country (not found)	National Garden Week
Troll Dressed for Easter	Designer (found); Material (found)	Easter
Citrus squeezer	Designer (not found); Date (not found)	- control object -
Jam dish	Designer (not found) ; date (not found)	- control object -
Powder bowl	Designer (not found); material (not found); date (not found)	- control object -
Time beam torch	Designer (not found); Manufacturer (not found); Date (not found)	- control object -
Shaving kit	Designer (not found); Manufacturer (not found); Date (not found)	- control object -
Rabbit egg cup	Designer	Easter
French cruet	Designer (not found); Manufacturer (not found); Date (not found)	- control object -

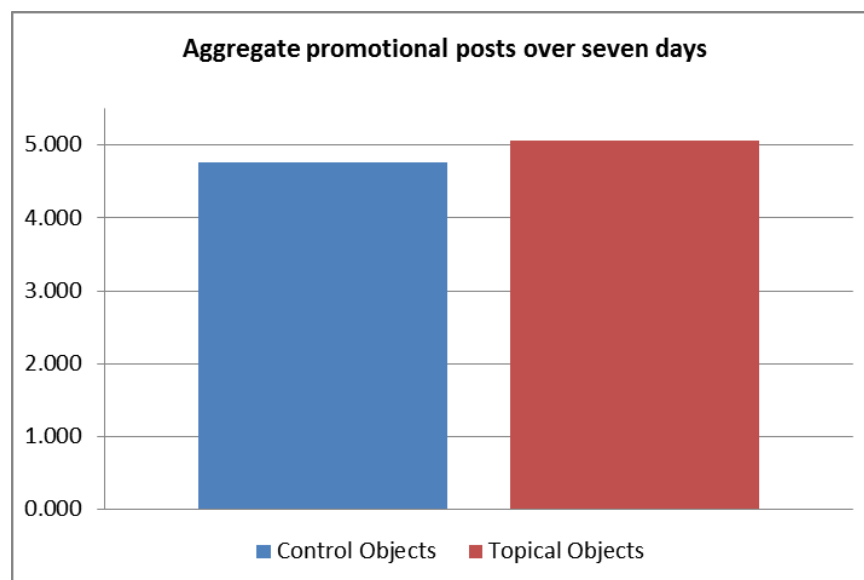
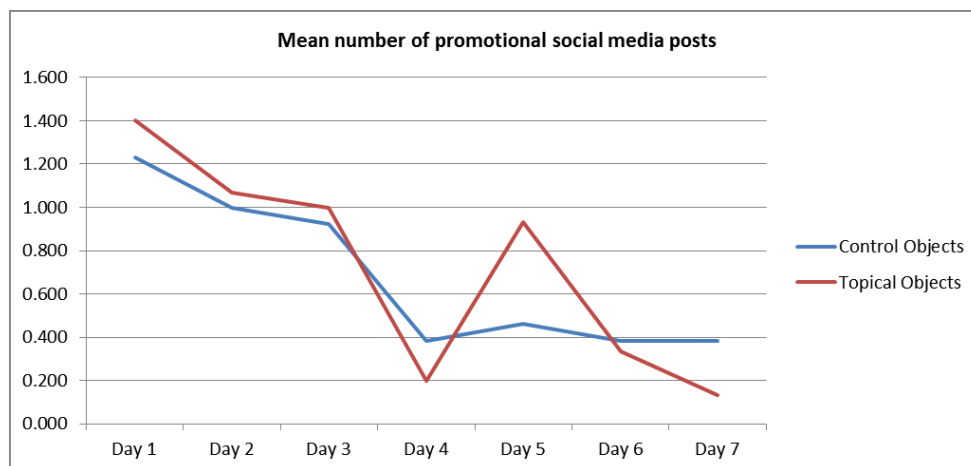
A.2 Data visualisations

A.2.1 Object promotion and overall engagement

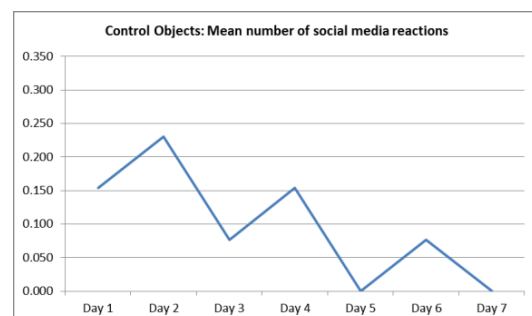
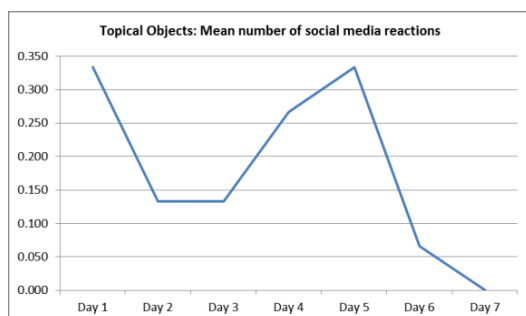


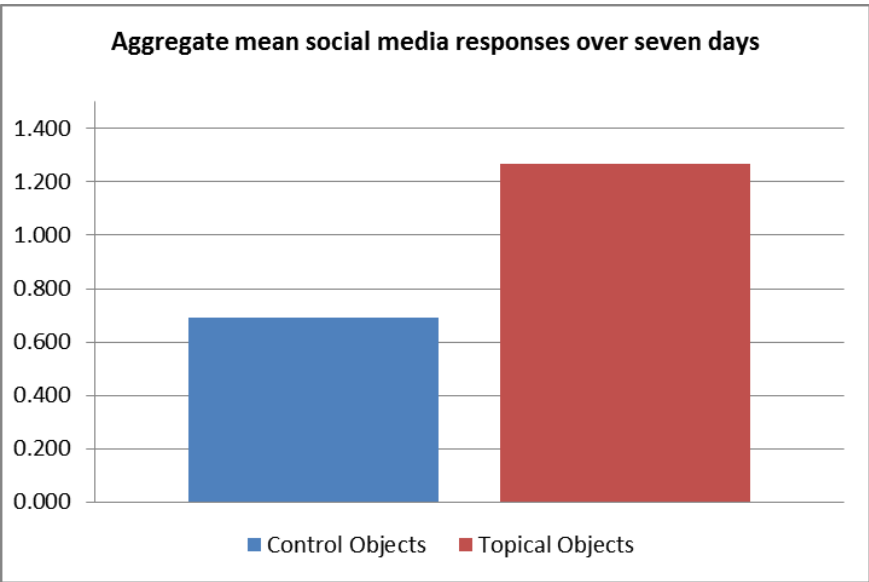
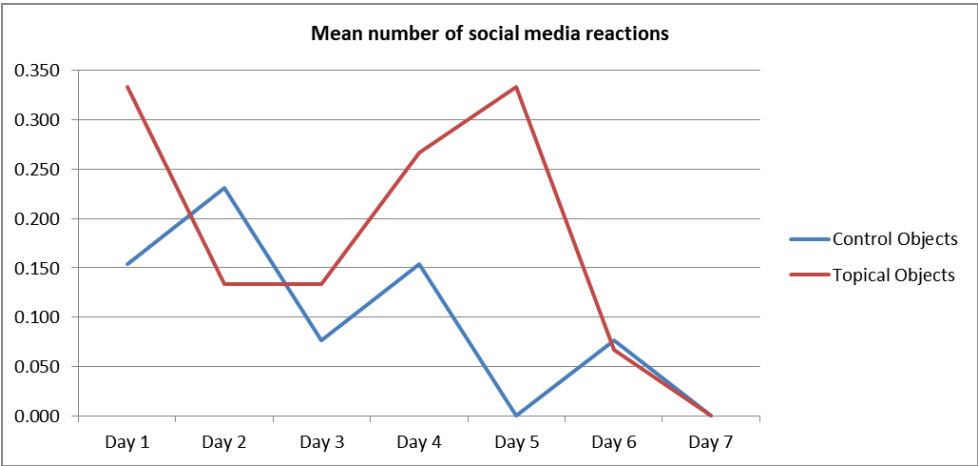
A.2.2 Object promotion



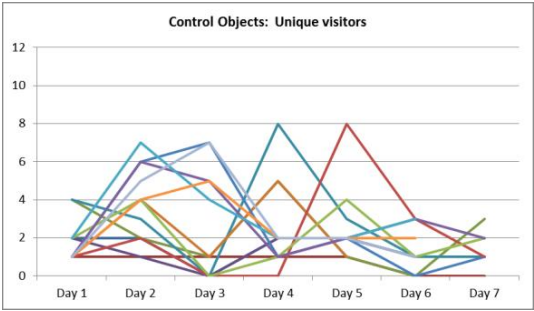
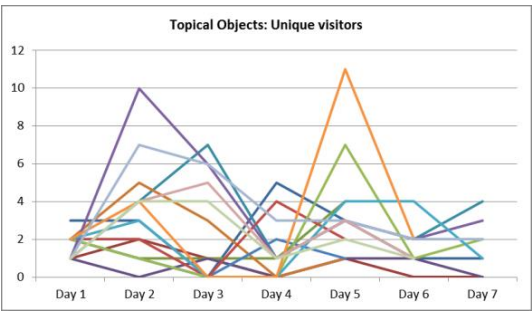


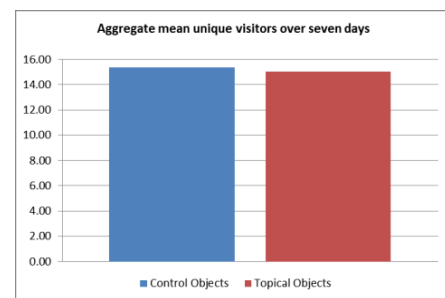
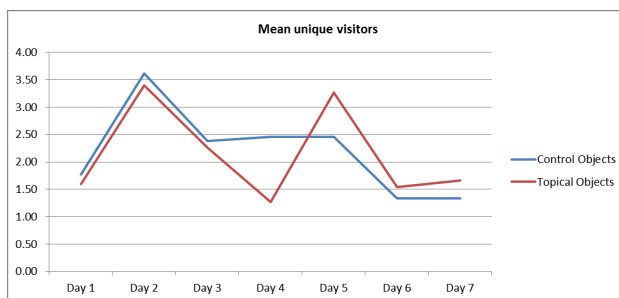
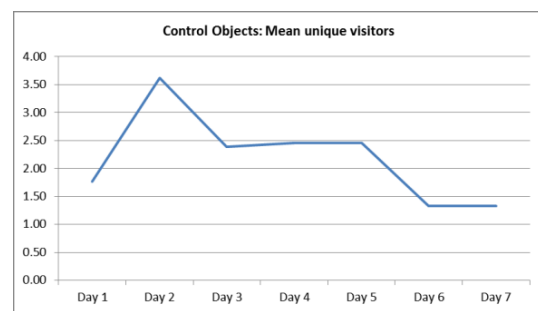
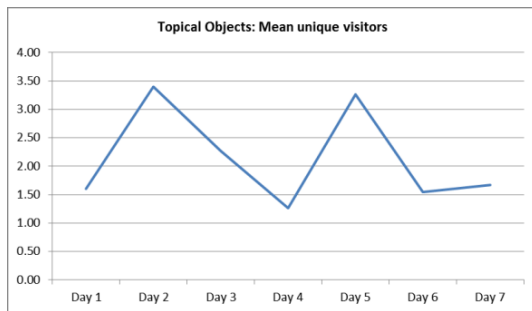
A.2.3 Social media reactions



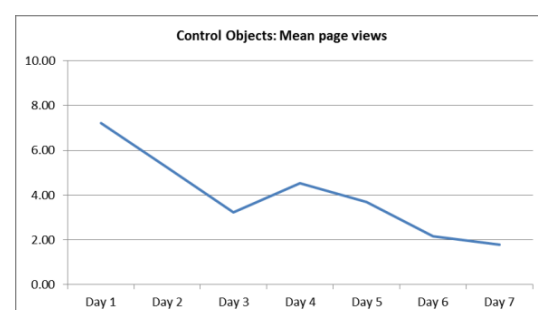
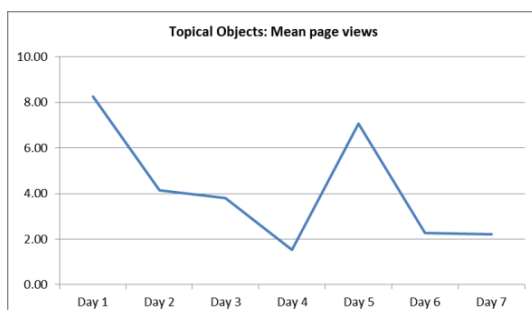
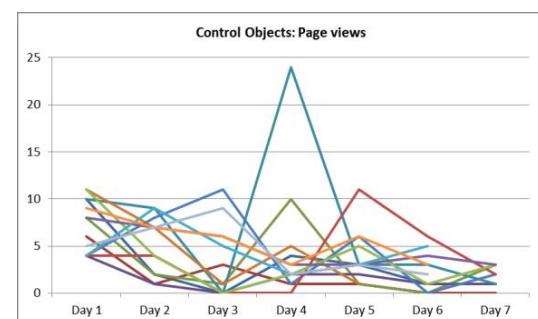
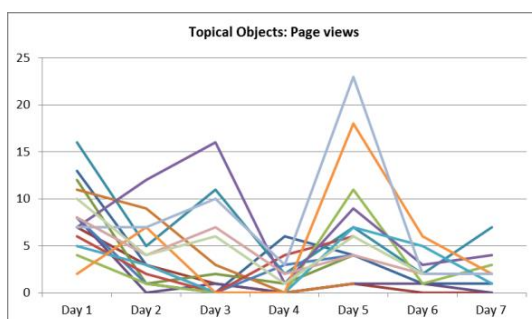


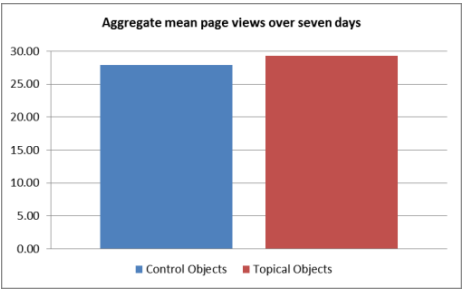
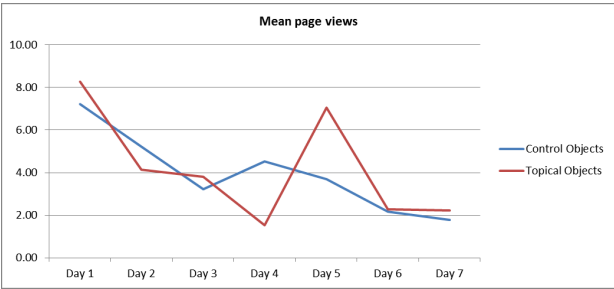
A.2.4 Unique visitors





A.2.5 Total page views





A.2.6 Average dwell time

